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Turkey

Biofuels Annual

2010 Turkey Biofuels Annual

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Report Highlights:
In 2009 only 7,000 MT of bio-diesel was produced in Turkey despite an annual capacity of 1.5 million MT. Bio-ethanol production was recorded as 40,000 MT in 2009.

Post:
Ankara

Executive Summary:
There was rapid growth in investment in the biofuels sector in Turkey from 2000 to 2005, but then the sector shrank in 2006 in response to unfavorable changes to the regulatory environment and related tax laws. Currently, development of the biofuels sector in Turkey is blocked by bureaucratic procedures and high tax rates.

In 2005 and 2006 many bio-diesel production facilities were established all around the country. In 2009 only 7,000 MT bio-diesel was produced despite the annual capacity of 1.5 million MT. Bio-ethanol production was recorded as just 40,000 MT in 2009.

Turkey does not import any bio-fuels and about 35 percent of bio-ethanol production is being exported.

Policy and Programs:
The Turkish biofuels sector did not get much attention from the government or the Turkish private sector until the economic crisis of 2000, which led to increasing interest in the biofuels market.

The definitions of bio-diesel and bio-ethanol were first included in Turkish regulations under the Petroleum Market Law in 2003. As the Law was not specific to bio-fuels and instead was based on petroleum, bio-diesel associations and other stakeholders pressured the government to instead regulate biofuels through a separate Renewable Energy Law.

In 2004 two regulations were adopted which ("Legislation on Technical Criteria to be Applied to the Petroleum Market" and "Petroleum Market Licensing Legislation") defined bio-diesel as a liquid fuel and laid out licensing criteria for the export, distribution, transport and sale of the product.

In 2005, standards for bio-diesel were set by the Turkish Standards Institute in accordance with European Union Standards. Accordingly, Biodiesel could be marketed as either "automobile bio-diesel" or "other fuel bio-diesel".

The Turkish Parliament passed a Renewable Energy Law (No. 5346), which entered into force in 2005. The law guarantees a minimum price of 5 Euro cents per kWh for renewable energy projects. Bio-fuels, however, were not regarded as a renewable energy source and did not benefit from the advantages provided by the Law. Some of these restrictions were put in place because of pressure from the petroleum industry and in addition, there were accusations that fuel labeled as biodiesel was actually smuggled in oil from neighboring countries. Turkey has some of the highest petroleum prices in the world. The average price of gasoline is about 3.65 TL/ lt (~ $2.4/ lt).

After the 2006 legislative changes, biodiesel lost its tax advantages over petroleum-based diesel. Industry sources note that for petroleum-based diesel there is no import tariff, only a special consumption tax, whereas for biodiesel there is an import tariff for the raw materials as well as a special consumption tax. Following the unfavorable regulatory environment many bio-refineries shut down after 2006.

Currently, there are no obligatory blending requirements for the fuel sector and a Special Consumption Tax (OTV) is applied to products. The government does not have any incentives for new investments or improvement of bio-diesel facilities, nor any special loan programs or loan guarantees.

Turkey is the 6th largest electricity market in Europe. The Turkish government has voiced strong support for increased electricity production from renewable sources. The Ministry of Energy set the goal of using renewable energy power generation to meet 30 percent of Turkey's electricity demand by 2023. The ministry has not given a breakdown of how it expects this energy could be supplied but the majority would have to come from hydropower and biomass, as those are the most abundant sources of renewable energy in Turkey.

The hydropower potential in Turkey is 140 GWh/y, although only 35,870 MW of this is currently in use. For biomass energy production, the main sources Turkey utilizes are agricultural, forestry, animal, and organic wastes. Turkey's biomass potential is 8.6 Mtoe, 6 Mtoe of which is currently in use.

Turkey also has a high solar and wind energy potential. One recent solar atlas study calculated the total electricity capacity to be approximately 380 billion kWh (56,000 MW Thermal power). Another study put the estimate at 76 Mtoe. According to the Ministry of Energy, installed solar cell capacity has reached 1 MW. Turkish companies are also investing a lot in wind energy, although regulations on land use have reportedly interfered with some of this investment. Out of a wind-energy potential as high as 48,000 MW, Turkey's installed wind energy capacity is currently only 802.8 MW.

Turkey is ranked first in Europe and seventh in the world in geothermal energy resources. Turkey's overall geothermal energy potential is estimated to be 35,000 MW, of which 77.2 MW is currently in use. In total, Turkey had 2,833 MW of power generation come on-line in 2009, which included 1000 MW of hydroelectric, wind, geothermal and biomass power plants.

Bioethanol and Biodiesel:
Production

The Turkish government did not specify any criteria at the initial stages of the establishment of the Turkish biofuels sector. Between 2003 and 2006 many biodiesel production facilities were established in Turkey. Following the introduction of mandatory application for licensing by Energy Market Regulatory Authority (EMRA) approximately 150 companies applied for license and only 48 of them received one. Due to the unfavorable regulatory environment since 2005, 15 of the licensed biorefineries shut down. Out of the 33 remaining, only 7 biorefineries actively produce biodiesel. Others have capacity but have stopped production and locked their doors.

The capacity of the Turkish bio-diesel sector is estimated at 1.5 million MT annually. Turkey only produced about 0.5% of the capacity (7,000 MT) in CY 2009. The production is predicted to be the same in CY 2010 as well. Industry sources indicate that the production might increase to 10,000 MT in CY2011. All of the production is used domestically as fuel. The producers use waste vegetable oil as raw material for bio-diesel production.

The major waste vegetable oil collector and supplier to the bio-diesel industry is the industry association, The Alternative Energy and Bio-diesel Manufacturers Union (ALBIYOBIR). According to their statistics the cost of the raw material they supply is 650 TL/ MT ($1= ~ 1.5 TL).

There are currently four bio-ethanol production facilities established in Turkey. However, only one of them actively operates. This facility uses mostly corn and very rarely wheat as a raw material. The total capacity of the sector is currently 160,000 MT and the total production in CY2009 was 40,000 MT and it is predicted to continue to remain at this level through CY 2010 and CY2011. Approximately 150,000 MT of corn was used to produce 40,000 MT bio-ethanol in CY2009.

DDGs are the major co-product of conventional bio-ethanol produced. All DDGs produced in Turkey are sold domestically.

The Turkish public and commercial transportation sector uses only diesel for fuel. Turkish regulations do not allow bio-diesel producers to sell bio-diesel directly to users. Since the producers do not have direct sales licenses, they must sell products to petroleum distribution companies whose licenses give them authority to sell bio-diesel to gas stations or to consumers.

Distribution companies must make initial investment in their facilities to allow for the storage and distribution of bio-fuels. Currently there is no legislation obligating distributors to incorporate bio-fuels in their product line. Therefore, distributors view bio-fuels from a purely commercial perspective and are not willing to invest in bio-diesel distribution.

Trade

Turkey does not import bio-diesel or bio-ethanol. Bio-diesel production is not exported and approximately 35 percent of bio-ethanol production is being exported.

In CY2009 approximately 130,000 MT of corn was used to produce 40,000 MT bio-ethanol.

According to Turkey's "inward processing regime" if a producer commits to using imported raw materials to produce biofuels for export purpose only, then the customs duty of the imported commodity would be zero. Since the bio-diesel sector currently only uses waste vegetable oil they do not import any feedstock. Prior to 2005 however, the biodiesel sector relied heavily on a variety of imported oils. The bio-ethanol sector uses about 60 percent imported corn, and 30 percent domestic corn.

Advanced Biofuels:

Although some research and development activities are being carried out by universities and by the Scientific and Technological Research Council of Turkey (TUBITAK), advanced biofuels are not commercialized yet. There is one commercial plant in Turkey conducting trials on algae biodiesel but the product is not being sold yet.

Biomass for Heat and Power:

Conventional &Advanced Bioethanol (million liters)						
CY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Production	38	38	50.6	50.6	50.6	50.6
Imports	0	0	0	0	0	0
Exports	N/A	N/A	N/A	17.7	17.7	17.7
Consumption	38	38	50,6	32.9	32.9	32.9
Ending Stocks	0	0	0	0	0	0
Production Capacity (conventional Fuel)						
No. of Biorefineries	0	1	3	4	4	4
Capacity	N/A	N/A	N/A	202	202	202
Production Capacity (advanced Fuel)						
No. of Biorefineries	0	0	0	0	0	0
Capacity	0	0	0	0	0	0
Co-product Production (1,000 MT)						
DDGs	30	30	40	40	40	40
Feedstock Use (1,000 MT)						
Corn	N/A	N/A	N/A	150	150	150

N/A: Data not available

Conventional &Advanced Biodiesel (million liters)						
CY	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Production	56.8	56.8	28.4	7.9	7.9	11.3
Imports	0	0	0	0	0	0
Exports	0	0	0	0	0	0
Consumption	56.8	56.8	28.4	7.9	7.9	11.3
Ending Stocks	0	0	0	0	0	0
Production Capacity (Conventional Fuel)						
No. of Biorefineries	48	48	48	33	33	33
Capacity	N/A	N/A	N/A	1.7	1.7	1.7
Production Capacity (Advanced Fuel)						
No. of Biorefineries	0	0	0	0	0	0

Capacity	0	0	0	0	0	0
Feedstock Use (1,000 MT)						
0	0	0	0	0	0	0

N/A: Data not available